Written Testimony
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Statement of
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Reviewers: CDC/ATSDR used the same testimony that cleared HHS and OMB in November 2018. The passages highlighted in yellow are new to this version. These were places we had to add language to provide updates and to keep the testimony accurate. Since the November hearing focused on Michigan, we updated the site work section to focus on sites around the country rather than Michigan specific sites.

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Chairman Barrasso, Ranking Member Carper, Distinguished Members of the Senate Committee on Environment and Public Works. I am Patrick Breysse, the Director of the National Center for Environmental Health at the Centers for Disease Control and Prevention, and the Director of the Agency for Toxic Substances and Disease Registry. I appreciate the opportunity to be here today to discuss CDC and ATSDR's (CDC/ATSDR) role in investigating exposure to and possible health effects associated with per- and polyfluoroalkyl substances (PFAS).

Agency for Toxic Substances and Disease Registry (ATSDR)

In 1980, Congress created the Agency for Toxic Substances and Disease Registry (ATSDR) to implement the health-related sections of laws that protect the public from hazardous wastes and spills of hazardous substances. The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), commonly known as the "Superfund" Act, provided the Congressional mandate to remove or clean up abandoned and inactive hazardous waste sites and to provide Federal assistance in toxic emergencies. As the lead Agency within the Public Health Service for implementing the health-related provisions of CERCLA, ATSDR is charged under the Superfund Act to assess the presence and nature of health hazards at specific Superfund sites, to help prevent or reduce further exposure and the illnesses that result from such exposures, and to expand the knowledge-base about health effects from exposure to hazardous substances.

In 1984, amendments to the Resource Conservation and Recovery Act of 1976 (RCRA) which provides for the management of legitimate hazardous waste storage or disposal facilities, authorized ATSDR to conduct public health assessments at these sites, when requested by the Environmental Protection Agency (EPA), states, or individuals. ATSDR was also authorized to assist EPA in determining which substances may pose a threat to human health.

With the passage of the Superfund Amendments and Reauthorization Act of 1986 (SARA), ATSDR received additional responsibilities in environmental public health. This act broadened ATSDR's responsibilities in the areas of public health assessments, establishment and maintenance of toxicological databases, information dissemination, and medical education.

In addition to the ATSDR headquarters office, ATSDR staffs a Regional Office within each of Department of Health and Human Services' 10 Regional Offices. ATSDR's regional representatives provide unique expertise, and special technical and field expertise within their assigned regions. Regional representatives serve as liaisons with all NCEH/ATSDR divisions and offices, and facilitate implementation of specific programs in each region

Per- and polyfluoroalkyl substances (PFAS) and Human Health

Per- and polyfluoroalkyl substances (PFAS) are a family of approximately 5,000 man-made chemicals, that have been used in industry and consumer products worldwide since the 1950s. They have been used in non-stick cookware, water-repellent clothing, stain resistant fabrics and carpets, some cosmetics, some firefighting foams, and products that resist grease, water, and oil. PFAS can be found near areas

where they are manufactured or where products containing PFAS are often used. PFAS can travel long distances, move through soil, seep into groundwater, or be carried through air. PFAS do not breakdown and are very persistent, so they remain in the environment. Because of their widespread use and their persistence in the environment, certain PFAS are found in the blood of people and animals all over the world and are present at low levels in a variety of food products and in the environment. Some PFAS can build up in people and animals with repeated exposure over time.

ATSDR's Role in Addressing PFAS Contamination

Exposure to PFAS is an important public health concern. CDC/ATSDR is helping our local, territorial, tribal, state, and federal partners to address increasing concerns. Since 1999, CDC has measured several types of PFAS in the U.S. population as part of the National Health and Nutrition Examination Survey (NHANES). NHANES is a survey that measures the health and nutritional status of adults and children in the United States. In particular, the survey has measured perfluorooctane sulfonic acid (PFOS) and perfluorooctanoic acid (PFOA).

ATSDR first became engaged with PFAS in 2009 during an investigation of PFAS contamination in Decatur, Alabama. ATSDR found that people drinking water from one municipal water system and some private wells in the area had higher than average PFAS serum levels. ATSDR supported EPA's actions to provide the owners of contaminated private wells with access to uncontaminated municipal water and recommended that the contaminated municipal water system take action to reduce levels of PFAS in water. The impacted water supply system, servicing more than 100,000 residents, voluntarily began immediate monitoring for PFAS and has implemented water filtration to reduce levels of PFOA and PFOS below the EPA Lifetime Health Advisory.

Over the last decade, interest in PFAS has been growing. ATSDR and our state health partners are investigating exposure to and possible health effects associated with PFAS in more than 30 communities across the United States. Many sites are related to drinking water contamination connected with PFAS production facilities or fire training areas where aqueous film forming foam (AFFF) was regularly used.

ATSDR's overarching approach focuses on assessing and reducing/eliminating community PFAS exposures including: (1) addressing community health concerns related to existing or previous PFAS exposures, (2) supporting action on the basis of scientific information, and (3) conducting health studies on exposure and health endpoints to provide actionable information to communities and health care providers. ATSDR's activities include site assessments, health education, technical assists to health departments, and exposure investigations. Our site assessments originate when we receive federal and/or state requests for assistance, or when we receive a petition from the public.

ATSDR's site work involves extensive community engagement and support. ATSDR staff provide community members, health educators, health care providers, and other health professionals with community environmental health education products to increase environmental health literacy.

We provide products to include: information about specific types of exposures to hazardous substances, exposure routes and pathways; health effects; and how to prevent or minimize exposures to hazardous substances in the environment. To specifically address community, state and local health department needs and the needs of health care providers, ATSDR developed a variety of PFAS related education materials, guidance such as the PFAS Exposure Assessment Technical (PEATT) Toolkit, and risk communication materials, along with scientific materials and protocols.

ATSDR's Support to Communities and Related PFAS Activities

ATSDR Tox Profile

ATSDR published a draft Toxicological Profile (Tox Profile) for Perfluoroalkyls (PFAs) for public comment in June 2018, and is in the process of reviewing the comments. Tox Profiles are reference guides that provide information about a toxic substance, such as its chemical and physical properties, sources of exposure, routes of exposure, health effects, and how the substance may interact with the environment. Congress mandates that ATSDR produce Tox Profiles that include an examination, summary, and interpretation of available studies of the health effects of a hazardous substance. The primary users of these documents are expected to be researchers and health professionals, including health assessors at the regional and state level. Tox Profiles are peer reviewed before they are released for public comment, and will be peer reviewed again if significant revisions are made as a result of the public comments.

In addition to summarizing information on PFAS toxicity, the Tox Profile included oral minimal risk levels (MRLs) for four PFAS, perfluorooctanoic acid (PFOA), perfluorooctane sulfonic acid (PFOS), perfluorohexane sulfonic acid (PFHxS), and perfluorononanoic acid (PFNA). A MRL is an estimate of the amount of chemical a person can eat, drink, or breathe each day without a detectable risk to health. MRLs are intended to serve as a tool to help public health professionals determine areas and populations potentially at risk for health effects from exposure to a particular chemical. It is important to note that MRLs are a screening tool that help identify exposures that could be *potentially* hazardous to human health. MRLs do not define regulatory or action levels for ATSDR, nor for other agencies. Exposures above the MRL do not mean that health problems will occur, but rather serve as a signal to health assessors to look more closely at a particular site or exposure pathway.

PFAS Guidelines for Clinicians

With widespread exposure to PFAS, it is necessary that clinicians are well-informed to handle concerns of communities where contamination has occurred. ATSDR developed guidelines and continuing education to assist clinicians with how to deal with patient management and treatment after PFAS exposure. It highlights what PFAS are, which chemicals fall into this category of substances, routes of exposure, exposure limits, identifies health effects associated with exposure to various PFAS, and suggests answers to specific patient questions about potential PFAS exposure.

Pediatric Environmental Specialty Units (PEHSUs) and Clinician Guidance

Pediatric Environmental Health Specialty Units (PEHSUs) are a source of medical information and advice on environmental conditions that influence reproductive and children's health. PEHSUs are academically based and are located in each federal region across the U.S. PEHSUs fill clinical care gaps by ensuring that healthcare providers have access to specialized environmental medical knowledge and resources to care for children and women of reproductive age. Healthcare providers rely on PEHSUs for guidance on prevention, diagnosis, management, and treatment of health effects from environmental exposures. In fiscal year (FY) 2017, ATSDR and funded partners, such as state and local health departments, educated over 34,000 health professionals on ways to diagnose and treat conditions related to hazardous environmental exposures.

For example, ATSDR is currently working with the State of Michigan around community PFAS issues and we were able to facilitate the connection of regional PEHSU clinician expertise to help educate and answer questions about PFAS and health effects for the community.

Site Work

ATSDR is currently working in over 30 sites across the country that have potential PFAS concerns. Some examples include the following:

ATSDR and the Alaska Department of Health and Social Services were asked by the Navy to provide assistance near the Naval Arctic Research Laboratory and Imikpuk Lake where PFOA was found. This included providing health education and working with the Alaska Native Corporation, Ukpeagvuik Inupiat Corporation, to find alternative drinking water sources for whaling crews.

As a result of the state-wide testing of municipal water systems for PFAS, in July 2018 the City of Parchment (Kalamazoo County) found that their drinking water system had significant contamination with PFAS. CDC/ATSDR provided assistance to the Kalamazoo County Health Department (KCHD) regarding clinician guidance and communication with healthcare providers.

The Vermont Department of Environmental Conservation (VDEC) found PFOA in private drinking water wells in North Bennington. VDEC is testing private wells within a 1.5-mile radius of the former ChemFab site, which is the source of the PFOA, to see how widespread the contamination is. The Vermont Department of Health (VDH) asked CDC/ATSDR for technical support in addressing health issues.

Current Activities Authorized through the National Defense Authorization Acts and Consolidated Appropriations Acts

The National Defense Authorization Acts (NDAA) and Consolidated Appropriations Acts for 2018 and 2019 authorized a transfer of funds from the Department of Defense (DOD) to CDC/ATSDR to study PFAS exposure and related health outcomes. CDC/ATSDR received $20 million in FY 2018, which will fund projects to advance our understanding about PFAS: exposure assessments, community engagement, and a health study at Pease International Tradeport in New Hampshire. Additional funding appropriated in FY 2019 will be used to support a multi-site health study.

The information gathered through the studies will allow governmental agencies and communities to make better decisions to protect the public's health. Additionally, CDC/ATSDR is consulting with our colleagues at the National Institute of Health, National Institute of Environmental Health Sciences on the health studies authorized by NDAA. The agency is working with DOD and EPA to gather data and information to assist in the exposure assessments and the health study.

Exposure Assessments/Community Engagement

ATSDR developed the PFAS Exposure Assessment Technical Tools (PEATT) to help state, local, tribal, and territorial health departments conduct PFAS biomonitoring activities to evaluate drinking water exposures to PFAS. The PEATT includes a protocol for statistically-based representative sampling, risk communication materials, questionnaires, and EPA's water sampling protocol to help characterize PFAS exposure in communities. Upon request, CDC/ATSDR will also provide technical assistance to health departments in developing and carrying out PFAS exposure assessments.

Through a cooperative agreement between CDC/ATSDR and the Association of State and Territorial Health Officials, the Pennsylvania Department of Health (PADOH) and the New York State Department of Health (NYSDOH) were provided funding to pilot the exposure assessment protocol as outlined in the PEATT. The work done by PADOH and NYSDOH at the pilot sites has contributed to the overall body of knowledge on PFAS exposure and has helped us refine our exposure assessment protocol. On February 21, 2019, CDC/ATSDR announced eight additional exposure assessment sites in communities

near current or former military installations known to have past or current PFAS exposure through drinking water. CDC/ATSDR will stagger the exposure assessments, and anticipates that the first one will begin in 2019 and the others will follow through 2020.

The exposure assessments focus on routes of exposure and will measure the blood and urine PFAS concentrations of community members, while taking into account environmental factors that may contribute to PFAS exposure. This will generate information about the impact of drinking water and non-drinking water PFAS exposure pathways on the PFAS body burden in each community. While contributing to the general science base of PFAS exposure, the exposure assessments will also provide a public health service to the community by providing information about both aggregate community exposures and individual exposures. The study is designed to give generalizable results that provide a valid overview of exposure and will allow the estimation of serum PFAS concentrations for community members who are not tested. Depending on the results of the investigation, ATSDR will make recommendations to further reduce exposure or conduct additional activities to better understand the impact of PFAS exposure on human health. ATSDR is in the process of finalizing the protocol for the exposure assessments and has submitted the protocol to OMB for approval.

CDC/ATSDR has also awarded a contract for community engagement during the exposure assessments and throughout CDC/ATSDR's work on PFAS. The community engagement aspect of the project will effectively communicate information to each community, using strategies tailored to meet the individual needs of each location. The community engagement activities will identify local concerns, connect with a variety of local audiences, garner buy-in from the community, encourage participation in the exposure assessments, and build trust between CDC/ATSDR and the communities. CDC/ATSDR will start the community engagement activities early and continue them throughout the exposure assessments so that communities have the support and information they need, enhancing the relationships between CDC/ ATSDR and the communities by promoting transparency and community understanding.

Pease Proof-of-Concept Study

The Pease Study will serve as a proof-of-concept model site for the multi-site study, allowing CDC/ATSDR to evaluate the study procedures and methods before embarking on the multi-site study.

In 2017, ATSDR conducted a feasibility assessment and literature review to identify candidate designs and health outcomes for a study at Pease International Tradeport and the multi-site health study. The proof-of-concept study will utilize the large amount of existing state and local data, so that CDC/ATSDR can model the relationship between the health effects shown in animal studies and measured and historically reconstructed serum levels of PFAS. CDC/ATSDR will test and validate the approach, collection methods, questionnaires, tools, procedures, and analyses required to conduct a PFAS health study. In addition to allowing for the fine-tuning of the future multi-site study, and contributing to the science base of information about PFAS and health outcomes, the Pease Study will also provide a public health service to the community by giving community members information that they can use as they follow-up with their health care providers. ATSDR is also in the process of finalizing the Pease study protocol and has submitted the protocol to OMB for approval.

CDC/ATSDR's Future Activities: Multi-Site Health Study

CDC/ATSDR is preparing a multi-site health study to learn about the potential relationship between PFAS and human health outcomes in multiple communities with contaminated drinking water. It will take into account information and lessons learned from the exposure assessments, community engagement activities and the Pease Study, as well any other available information in order to design a

study that maximizes the impact and provides information to communities across the nation. CDC/ATSDR is moving ahead with planning for the multi-site study and will announce a competitive funding opportunity later this spring.

Conclusion

In closing, I would like to leave you with a few key points. First, PFAS exposure is widespread due to the pervasiveness of these chemicals in society, persistence in the environment, and the multiple human exposure pathways. Second, CDC/ATSDR is working across the United States to learn more about PFAS exposure and its health effects. Third, there are extensive community concerns and it is critical for CDC/ATSDR, local, state, federal, and academia partners to work together to provide clear communication to the public about the risk and address their concerns. Thank you again for the opportunity to discuss CDC/ATSDR's role in investigating exposure to and possible health effects associated with PFAS, as well as our current and future planned activities. I welcome your questions.